

Application No.: 10/800,230

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Docket No.: TOW-067RCE

AMENDMENTS TO THE CLAIMS

1. (currently amended) A fuel gas production apparatus for reforming a hydrogen-containing fuel to produce a hydrogen-rich fuel gas, comprising:

a reforming mechanism including an auto-thermal reforming (ATR) system for reforming ~~the said~~ hydrogen-containing fuel to obtain a reformed gas, said reforming mechanism including an evaporator for changing water into steam before said steam mixes with said hydrogen-containing fuel or an oxygen supply;

a PSA mechanism for removing impurities from said reformed gas to refine said reformed gas into said fuel gas, said PSA mechanism including an off-gas tank; and
a cooling mechanism provided between said reforming mechanism and said PSA mechanism,

wherein said off-gas tank is coupled to said evaporator,

wherein said reforming mechanism uses said hydrogen-~~[[]]~~containing fuel, said steam and said oxygen supply to induce oxidation reaction and reforming reaction simultaneously, and

wherein said oxygen supply is supplied to said reforming mechanism is provided separately from said water.

2. (canceled)

3. (original) A fuel gas production apparatus according to claim 1, wherein said hydrogen-containing fuel is methane.

4. (currently amended) A fuel cell system comprising:

a fuel gas production apparatus for reforming a hydrogen-containing fuel to produce a hydrogen rich fuel gas; and

a fuel cell using said fuel gas supplied from said fuel gas production apparatus,

wherein said fuel gas production apparatus comprises:

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a reforming mechanism including an auto-thermal reforming (ATR) system for reforming the said hydrogen-containing fuel to obtain a reformed gas, said reforming mechanism including an evaporator for changing water into steam before said steam mixes with said hydrogen-containing fuel or an oxygen supply;

a PSA mechanism for removing impurities from said reformed gas to refine said reformed gas into said fuel gas, said PSA mechanism including an off-gas tank; and
a cooling mechanism provided between said reforming mechanism and said PSA mechanism;

wherein said off-gas tank is coupled to said evaporator,

wherein said reforming mechanism uses said hydrogen-~~[]~~containing fuel, said steam and said oxygen supply to induce oxidation reaction and reforming reaction simultaneously, and

wherein said oxygen ~~supply is supplied~~ to said reforming mechanism is provided separately from said water.

5. (canceled)

6. (original) A fuel cell system according to claim 4, wherein said hydrogen-containing gas is methane.

7. (original) A fuel cell system according to claim 4, further comprising an air blower for supplying air to said fuel cell.